Agility fuel systems™

Field Service Bulletin

LNG Fuel System

Solenoid Valve Coil Replacement

ENP-397

May 8, 2015

1. Introduction

Fuel shutoff solenoids used in Agility's LNG fuel systems may fail if exposed to wet conditions. Moisture may enter the electrical coil assembly (see Figure 1), which may lead to internal corrosion and premature failure of the electrical coil, which will cause the fuel shutoff to fail in the closed position or to become erratic, which will stop fuel flow to the engine, or the fuel flow may become erratic.

The electrical coil may fail in the shorted condition, which may cause the supply fuse to blow due to an over-current condition. The electrical coil may fail in the open condition, which will not result in a blown fuse.

Agility Fuel Systems, with Parker and Chart, developed an improved fuel shutoff solenoid coil and enclosure that provides additional environmental protection for the coil. All LNG solenoid coils should be replaced with the upgraded coil and housing.

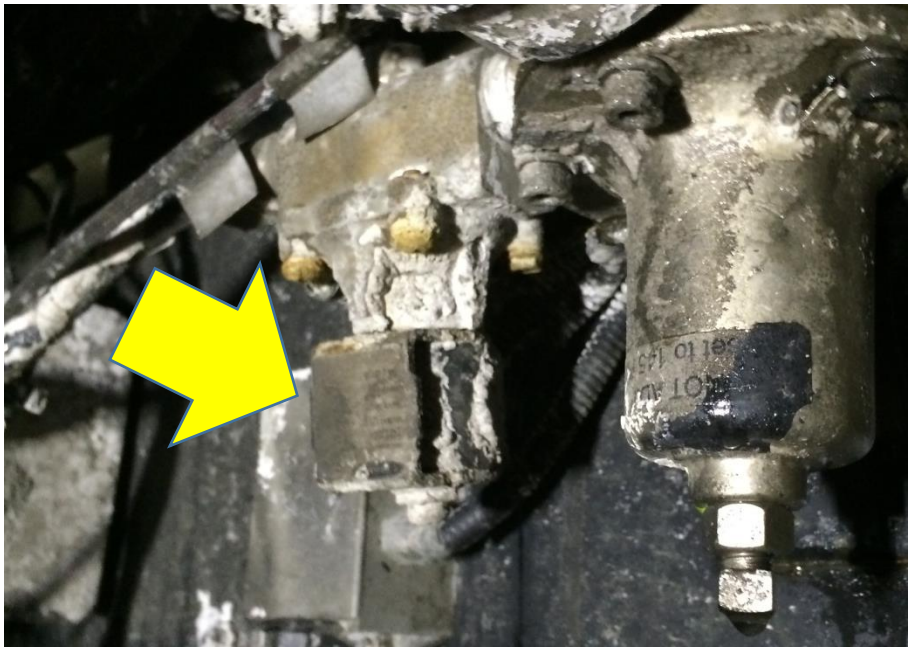

Figure 1. This corroded and non-functioning LNG solenoid valve coil is causing no fuel flow condition.

2. Affected Units

All fuel shutoff solenoids meeting the criteria should be upgraded, if the solenoid is mounted to the vehicle below the bottom edge the chassis frame rail.

3. Corrective Action

Remove and replace the solenoid valve coil per the procedure described in this bulletin

4. Tools and Materials

- Personal protective equipment, PPE
- Small wire brush for cleaning
- Torque wrench

- Replacement hardware and fasteners
- O-ring lubricant
- Silicone RTV adhesive/sealant (Permatex Sensor-Safe Ultra Copper® Item 81878 used here)
- Replacement LNG solenoid coil with enclosure, Agility Fuel Systems part number 10404087

NOTE

It is not necessary to depressurize or defuel the system for this procedure. The removal and replacement of the electrical coil on the solenoid valve does not open the fuel carrying components in the fuel system. However, standard cautions apply, as this procedure involves manipulating fuel carrying components.

5. Procedure

WARNING

The solenoid valve and heat exchanger generate considerable heat during normal operation. Use caution when working with these components.

1. Refer to Figure 2. Locate the heat exchanger assembly and remove the regulator and solenoid cover, Item 12. This is attached with four 1/4-20 bolts and nut clips. If any fasteners are broken or missing, replace them with equivalent Grade 5 hardware.

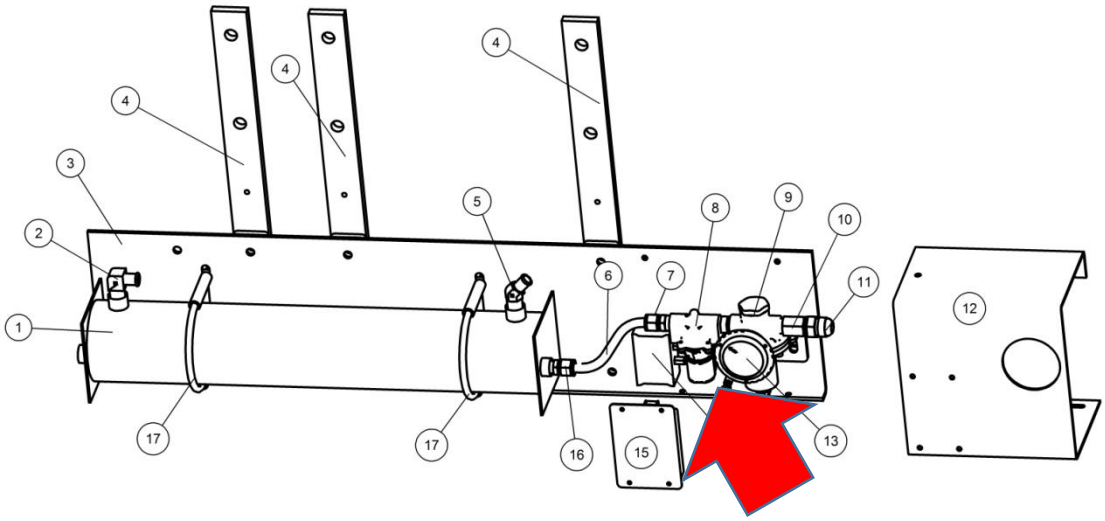

Figure 2. LNG system heat exchanger-solenoid valve assembly. The red arrow identifies the electrical coil that will be replaced.

2. Disconnect the 4-pin and 16-pin wire harnesses at the ECU. These are held in place with small retaining clips. Do not pull the wires coming from these connectors.
3. Refer to Figures 3 and 4. Disconnect the 2-pin connector that supplies power to the solenoid. Remove the 14mm nut and spring washer that attaches the solenoid coil to the valve body. These should be at the bottom of the assembly. Remove the

solenoid coil. Do not remove the low temperature sensor wire (it looks like a ground wire) attached to the valve mounting screw.

4. Tag all removed parts with vehicle number, mileage, LNG tank serial number and CRN number. Return parts to Agility Fuel Systems per Section 6, Warranty Information.

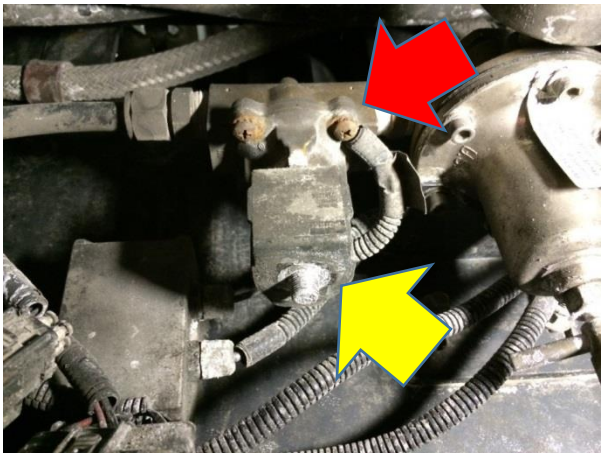

Figure 3. Remove the nut (yellow arrow) to remove the solenoid coil. The low temperature sensor (red arrow) does not have to be removed.

Figure 4. Solenoid coil and valve separated.

5. Clean and remove corrosion from the valve sleeve and plunger area with a wire brush or fine sandpaper to help ensure proper valve operation.

NOTE

It is important to clean the valve stem and sleeve area carefully and completely to ensure a weather tight seal.

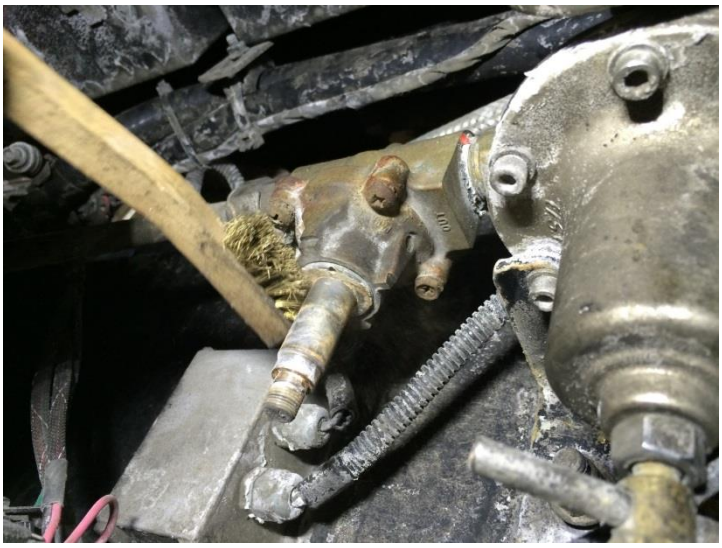

Figure 5. Clean the valve stem and threads with a small wire brush.

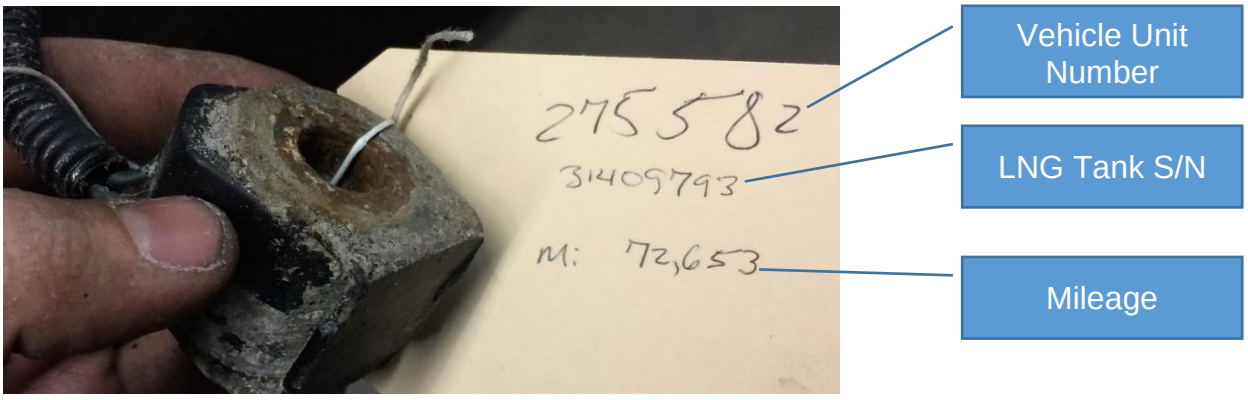

Figure 6. Each removed coil must be tagged with vehicle and tank information for proper reimbursement.

6. The new coil includes a housing assembly and cable with connector as shown in Figure 7.

Figure 7. The new solenoid coil comes installed inside an enclosure, cable gland and two-pin connector.

7. Apply an O-ring lubricant to the O-ring on the top of the coil housing and wipe off excess, see Figure 8.

Figure 8. Apply O-ring lube to the top of the coil housing as shown and remove excess lube from the coil cover.

8. Apply a silicone RTV sealant to further enhance weatherproofing.

Figure 9. Silicone sealant on the top of the coil cover adds additional weatherproofing. Make sure the sealant does not contaminate the plunger.

9. Install the coil and housing on the valve as shown in Figure 10. A wave (spring) washer is installed between the coil housing and the housing nut (red arrow). The cable gland end should face the rear of the vehicle.

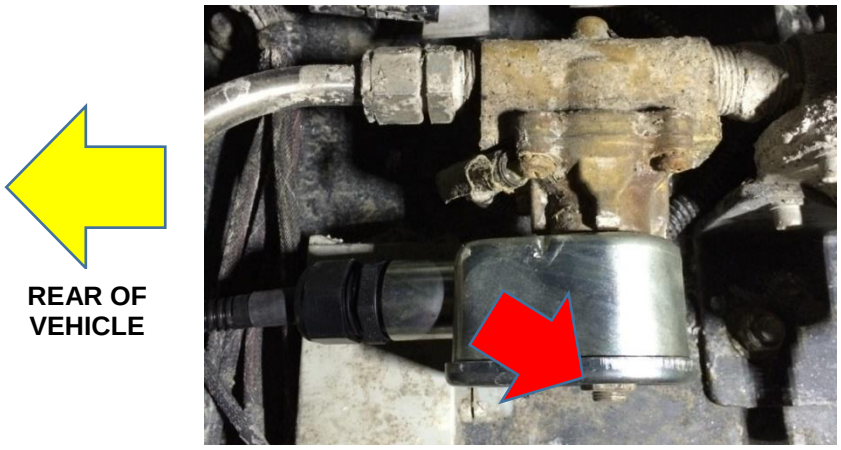

Figure 10. Solenoid valve with new coil installed. The cover must be as close as possible to the low temp sensor box so that the 4 pin connector on the ECU will fit.

10. Torque the 14mm nut to 43 to 53 in.-Lbs.
11. Reconnect the wire harnesses to the coil and ensure that the wiring is not pulled tight
12. Secure wire harnesses with UV-protected cable ties as needed.
13. Verify solenoid function by turning the ignition on. You should hear a click and see fuel gauges indicate fuel pressure and levels.
14. Re-install the cover and re-connect wires to the ECU.
15. Make sure that the pressure gauge does not contact the cover to prevent damage.

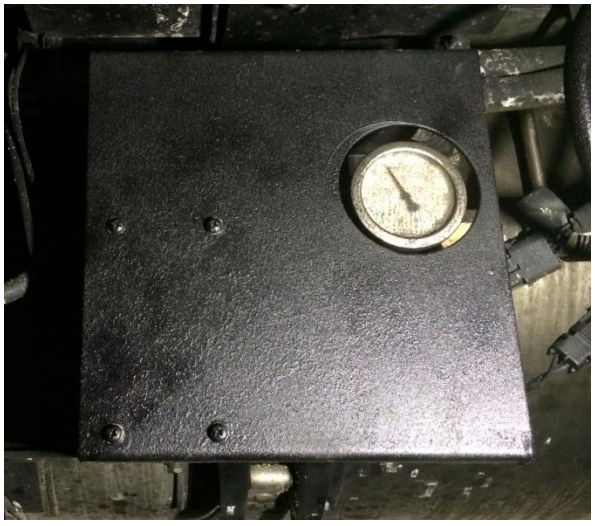

Figure 11. Installation completed.

6. Warranty Information

1. This procedure is covered under warranty. **In order to receive proper reimbursement,** return the solenoid coils using the CRN procedure in the Warranty Manual, ENP-067, Section 3.6:
    a. All removed components must be identified with the CRN.
    b. The servicing dealer will have 15 days to return the defective part to Agility. The package and label containing the returned part(s) must be clearly marked with the CRN. Return parts may be shipped UPS collect to:

Agility Fuel Systems
Attn: Warranty Processing – CRN _____
1815 Carnegie Ave
Santa Ana, CA 92705 USA

    c. If requested parts are not returned to Agility per the above listed guidelines, the dealer/service facility will be charged back for all parts contained within each claim or shipped to the dealer by Agility.

Standard repair time (SRT) is 0.5 hours.

If you have any questions, contact Agility Fuel Systems Product Support at 949-267-7745 or support@agilityfs.com.

Agility Fuel Systems
Product Support
1815 Carnegie Ave
Santa Ana, CA 92705 USA

Revision	Description	Author	Approved By	Date
--	Initial Release	W. Yoshida	Y. Coy	5/8/15